

A meta-analysis of the efficacy of laser phototherapy on pain relief.

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Abstract

OBJECTIVE: Laser phototherapy has been widely used to relieve pain for more than 30 years, but its efficacy remains controversial. To ascertain the overall effect of phototherapy on pain, we aggregated the literature and subjected the studies to statistical meta-analysis.

METHODS: Relevant original studies were gathered from every available source and coded. Articles that met preestablished inclusion criteria were subjected to statistical meta-analysis, using Cohen's d statistic to determine treatment effect sizes.

RESULTS: Fifty-two effect sizes were computed from the 22 articles that met the inclusion criteria. The resulting overall mean effect size was highly significant; $d = +0.84$ (95% confidence interval = 0.44-1.23). The effect size remained significant even when a high outlying d value was conservatively excluded from the analysis; $d = +0.66$ (95% confidence interval = 0.46-0.86). The fail-safe number associated with the overall treatment effect, that is, the number of additional studies in which phototherapy has negative or no effect on pain needed to negate the overall large effect size of +0.84, was 348.

DISCUSSION: These findings warrant the conclusion that laser phototherapy effectively relieves pain of various etiologies; making it a valuable addition to contemporary pain management armamentarium.

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